SPECIFICATIONS

1. PICTURE TUBE

Size	: 17 inch
Gun	: In-line
Deflection Angle	: 90°
Neck Diameter	: 29.1 mm
Phosphor	: P22
Transmission	: 51%
Dot Pitch	: 0.26 mm
Face Treatment	: ARASC(Anti-Reflection&Anti-Static Coating)
Low Radiation	: MPR- ll (StudioWorks 78i) TCO-92(StudioWorks 78T)

2. SIGNAL

2-1. HORIZONTAL & VERTICAL SYNC

1) Input Voltage Level : Low=0~0.8V, High=2.1~5.5V
2)Sync Polarity : Positive or Negative
3)Composite Sync Signal
Vertical Sync Width :1H~10H.
Serration Pulse : NON, 0.5H, 1H, EX-OR
Equalize Pulse : Max 5H
* REMARK: H=Horizontal Period

2-2. VIDEO INPUT SIGNAL

1) Voltage Level : 0~0.7 V
a) Color 0, 0 : 0 Vp-p
b) Color 7, 0 : 0.467 Vp-p
c) Color 15, 0 : 0.7 Vp-p
2) Input Impedance : 75 ohm
3) Video Color : R, G, B Analog
4) Signal Format : Refer To Timing Chart

2-3. SIGNAL CONNECTOR

15 Pin D-Sub Connector / 5 BNC Connector

2-4. SCANNING FREQUENCY

Horizontal : 30 ~ 85 kHz
Vertical : 50 ~ 120 Hz

3. POWER SUPPLY

3-1. POWER RATING

AC 90~264 V (Free Voltage), 50/60 Hz, 2.0 A Max.

3-2. POWER CONSUMPTION

MODE	H/V SYNC	POWER CONSUMPTION	LED COLOR
NORMAL (ON)	ON/ON	less than 120 W	GREEN
STAND-BY	OFF/ON	less than 15 W	AMBER
SUSPEND	ON/OFF	less than 15 W	
OFF	OFF/OFF	less than 5 W	AMBER
FAULT	OUT OF RANGE	less than 5 W	AMBER

4. DISPLAY AREA

4-1. Active Video Area	: 300 mm X 225 mm (Available for Full Screen)
4-2. Display Color	: Full Colors
4-3. Display Resolution	: 1600 Dots X 1280Lines
4-4. Video Bandwidth	: 135 MHz

5. ENVIRONMENT

6-1. Operating Temperature	: 10 °C to 35 °C (Ambient)
6-2. Relative Humidity	: 8% to 80% (Noncondensing)
6-3. Altitude	: 10,000 ft

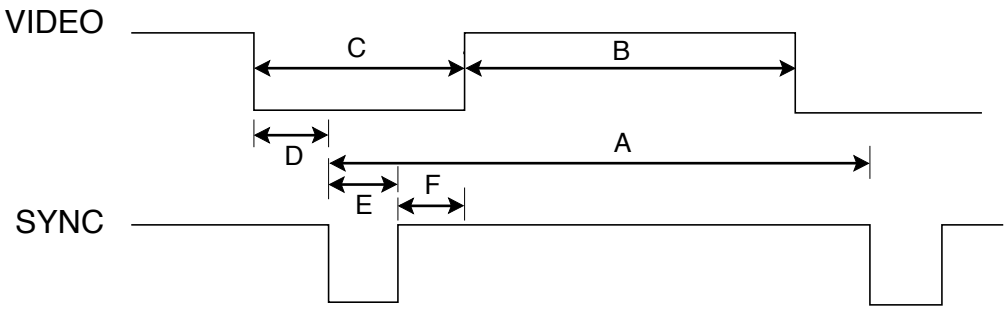
6. DIMENSIONS (W/TILT SWIVEL)

Width	: 412.0 mm
Depth	: 431.0 mm
Height	: 428.5 mm

7. WEIGHT (W/TILT SWIVEL)

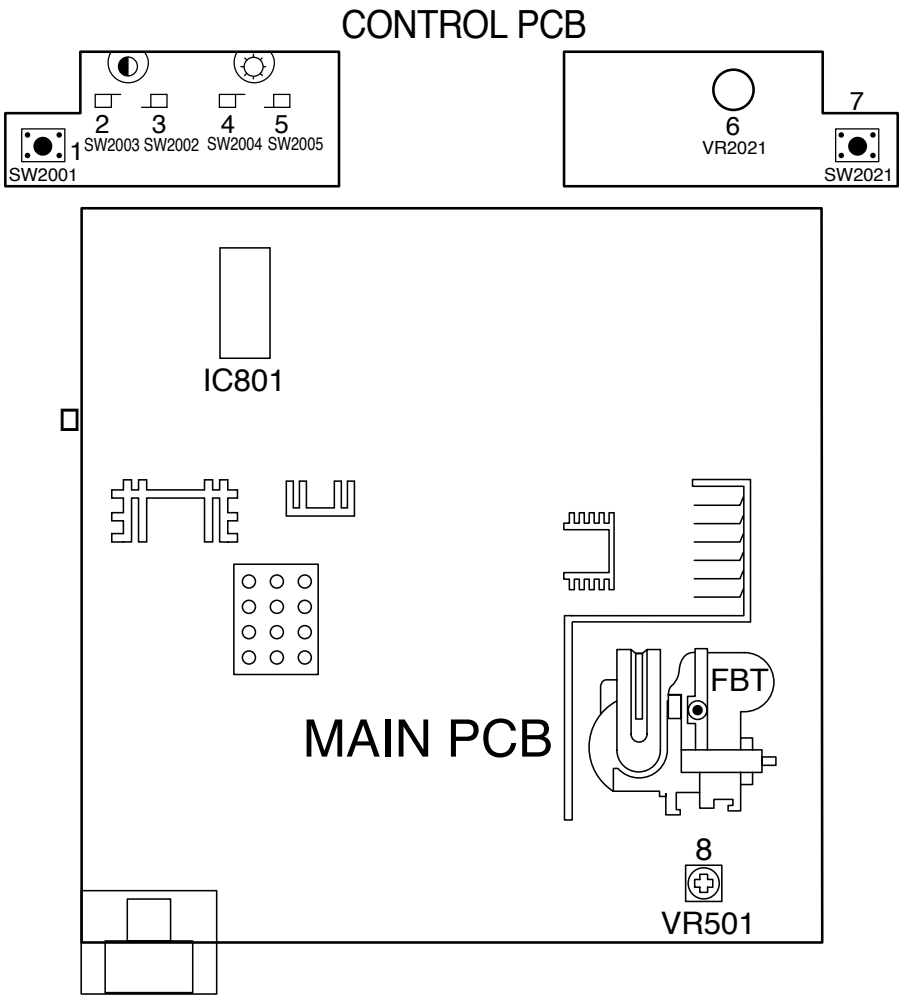
Net. Weight	: 18.7 kg
Gross Weight	: 23.2 kg

TIMING CHART



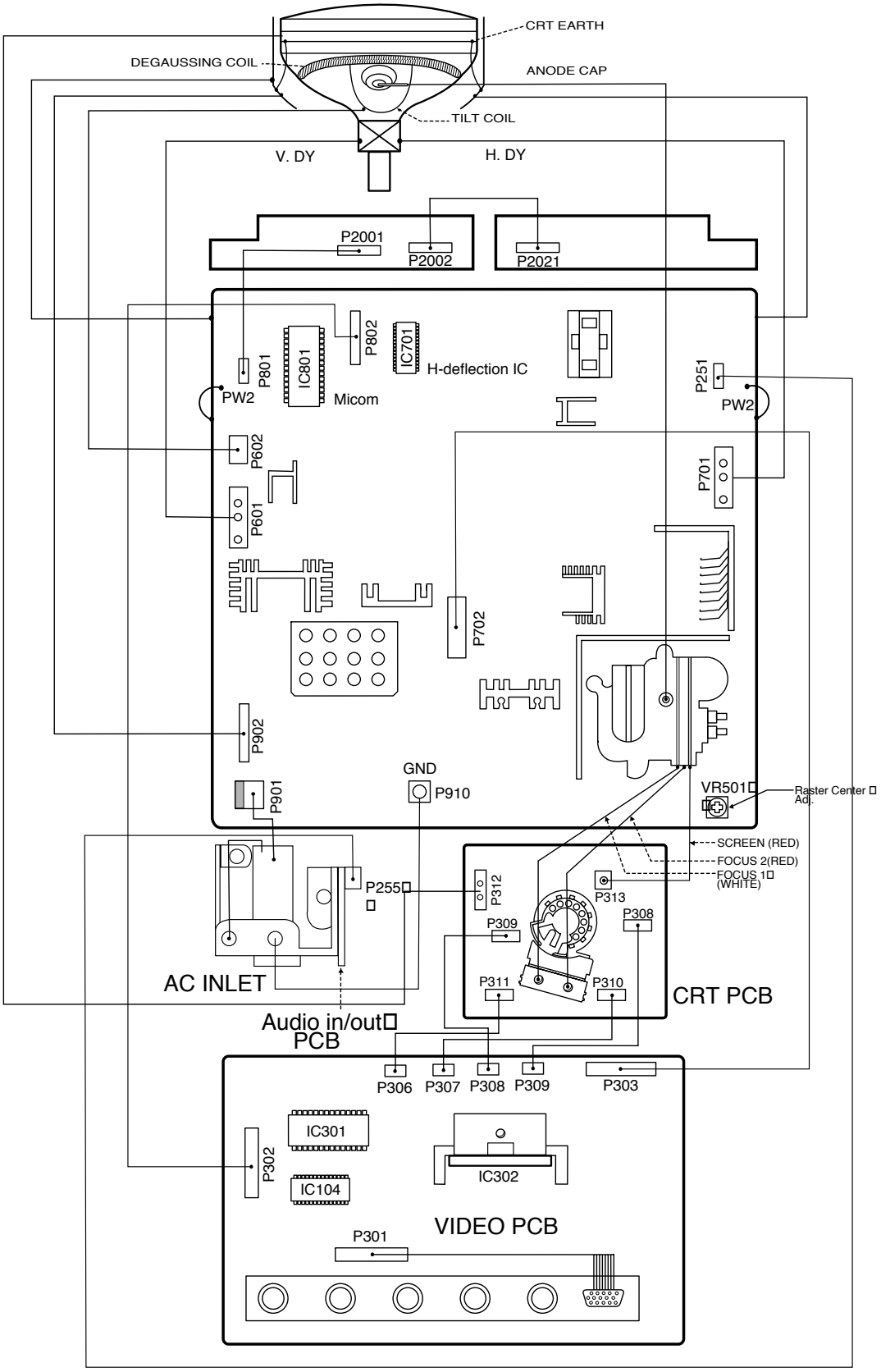
MODE			MARK	MODE 1	MODE 2	MODE 3	MODE 4	MODE 5	MODE 6	MODE 7	MODE 8
HORIZONTAL	Sync Polarity			–	–	–	+	+	+	–	+
	Frequency	kHz		31.467	31.467	37.500	46.875	60.023	63.981	68.681	79.976
	Total Period	μs	A	31.778	31.778	26.667	21.333	16.660	15.630	14.560	12.504
	Video Active Time	μs	B	25.422	25.422	20.317	16.162	13.003	11.852	11.520	9.481
	Blanking Time	μs	C	6.356	6.356	6.350	5.171	3.657	3.778	3.040	3.023
	Front Porch	μs	D	0.636	0.636	0.508	0.323	0.203	0.444	0.320	0.119
	Sync Duration	μs	E	3.813	3.813	2.032	1.616	1.219	1.037	1.280	1.067
	Back Porch	μs	F	1.907	1.907	3.810	3.232	2.235	2.296	1.440	1.837
VERTICAL	Sync Polarity			+	–	–	+	+	+	–	+
	Frequency	Hz		70.077	59.941	75.000	75.000	75.029	60.020	75.062	75.025
	Total Period	ms	A	14.270	16.683	13.333	13.333	13.328	16.661	13.322	13.329
	Video Active Time	ms	B	12.711	15.253	12.800	12.800	12.795	16.005	12.667	12.804
	Blanking Time	ms	C	1.559	1.430	0.533	0.533	0.533	0.656	0.655	0.525
	Front Porch	ms	D	0.415	0.318	0.026	0.021	0.017	0.016	0.043	0.012
	Sync Duration	ms	E	0.064	0.063	0.080	0.064	0.050	0.047	0.044	0.038
	Back Porch	ms	F	1.080	1.049	0.427	0.448	0.466	0.594	0.568	0.475
Resolution				720 × 400	640 × 480	640 × 480	800 × 600	1024 × 768	1280 × 1024	1152 × 870	1280 × 1024
RECALL				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

CONTROL LOCATIONS



NO.	Ref. No.	Control Function
1	SW 2001	POWER SWITCH
2	SW 2003	CONTRAST INCREASE
3	SW 2002	CONTRAST DECREASE
4	SW 2004	BRIGHT INCREASE
5	SW 2005	BRIGHT DECREASE
6	VR 2021	OSD SELECT
7	SW 2021	ENTER
8	VR 501	RASTER CENTER

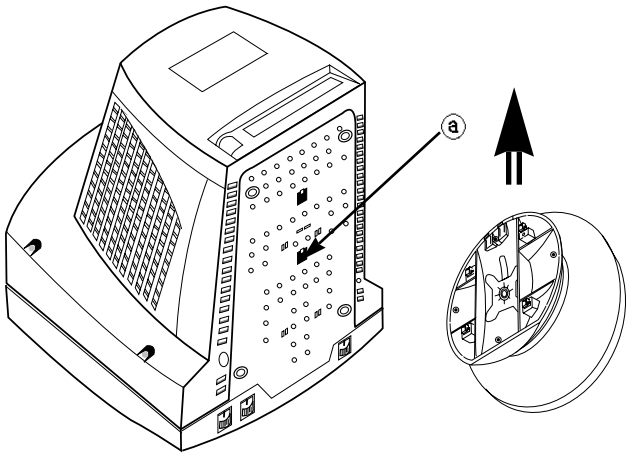
WIRING DIAGRAM



DISASSEMBLY

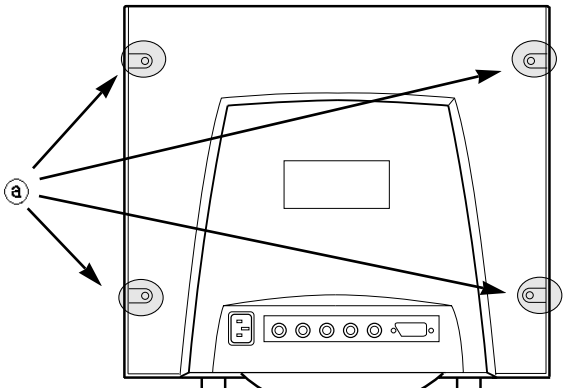
1. TILT/SWIVEL REMOVAL

① Set the monitor faces bottom.
② Pressing the latch ⓐ, carefully remove the Tilt/swivel by pulling it upward.



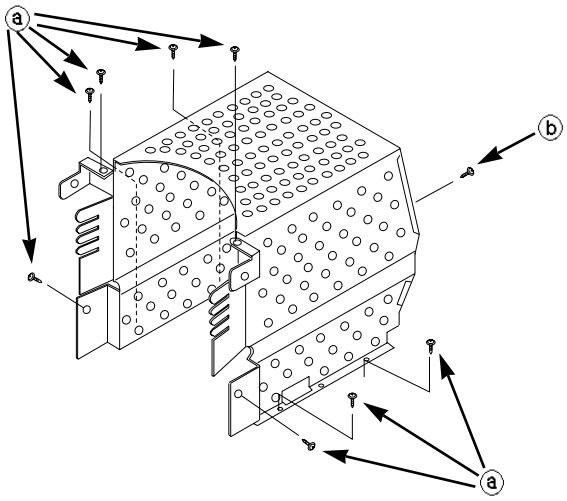
2. BACK COVER REMOVAL

① Remove four screws ⓐ from the Back Cover.
② Slide the Back Cover away from the Front Cabinet of the monitor.



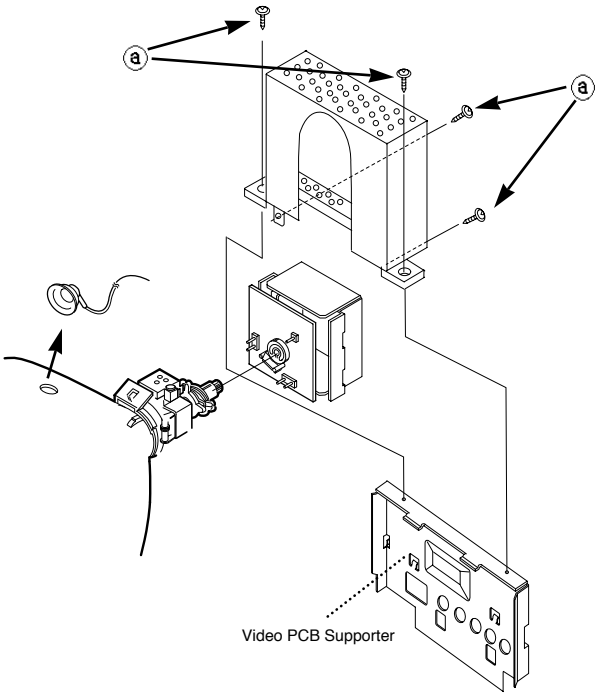
3. TOP SHIELD REMOVAL

① Remove eight screws ⓐ.
② Remove screw ⓑ.



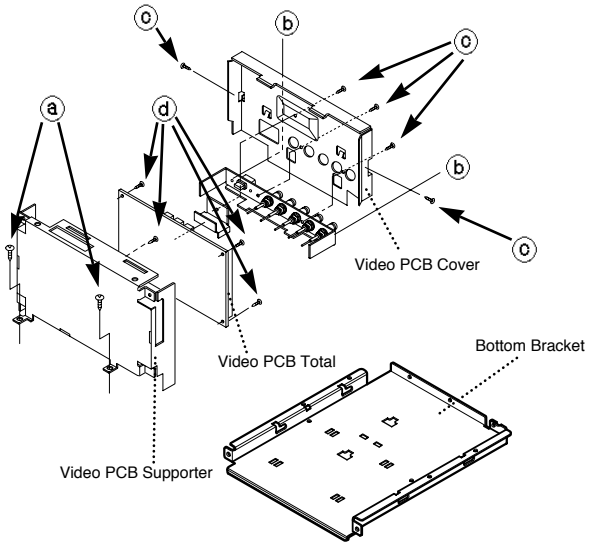
4. CRT ASSEMBLY REMOVAL

① Remove four screws ⓐ.
② Carefully separate the CRT Assembly from the CRT neck.
③ Discharge the remained static electricity by shorting between the Anode Cap and the CRT ground.
④ Disconnect the Anode Cap from the CRT.



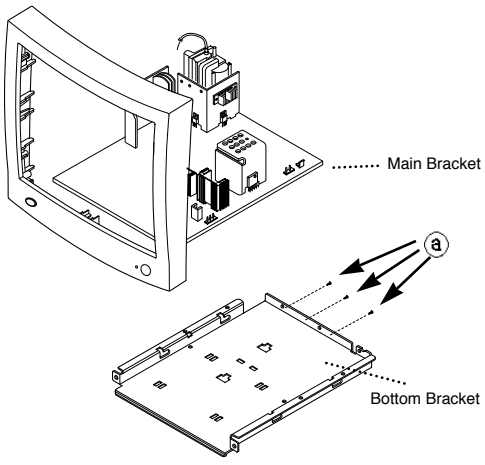
5. VIDEO ASSEMBLY REMOVAL

① Disconnect P302, P303, P304, P305, P306 and P307 from the Video PCB Total.
② Remove two screws ⓐ.
③ Remove the Video PCB Total from the Bottom Bracket.
④ Remove two screws ⓑ.
⑤ Remove five screws ⓒ.
⑥ Disconnect rest connectors from the Video PCB Total.
⑦ Remove four screws ⓓ.



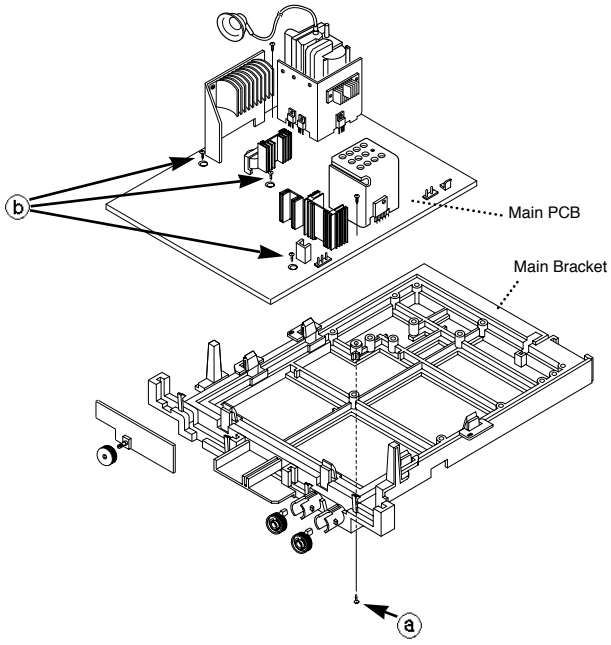
6. BOTTOM BRACKET REMOVAL

① Remove three screws ⓐ.
② Disconnect the P902 from the Main PCB.

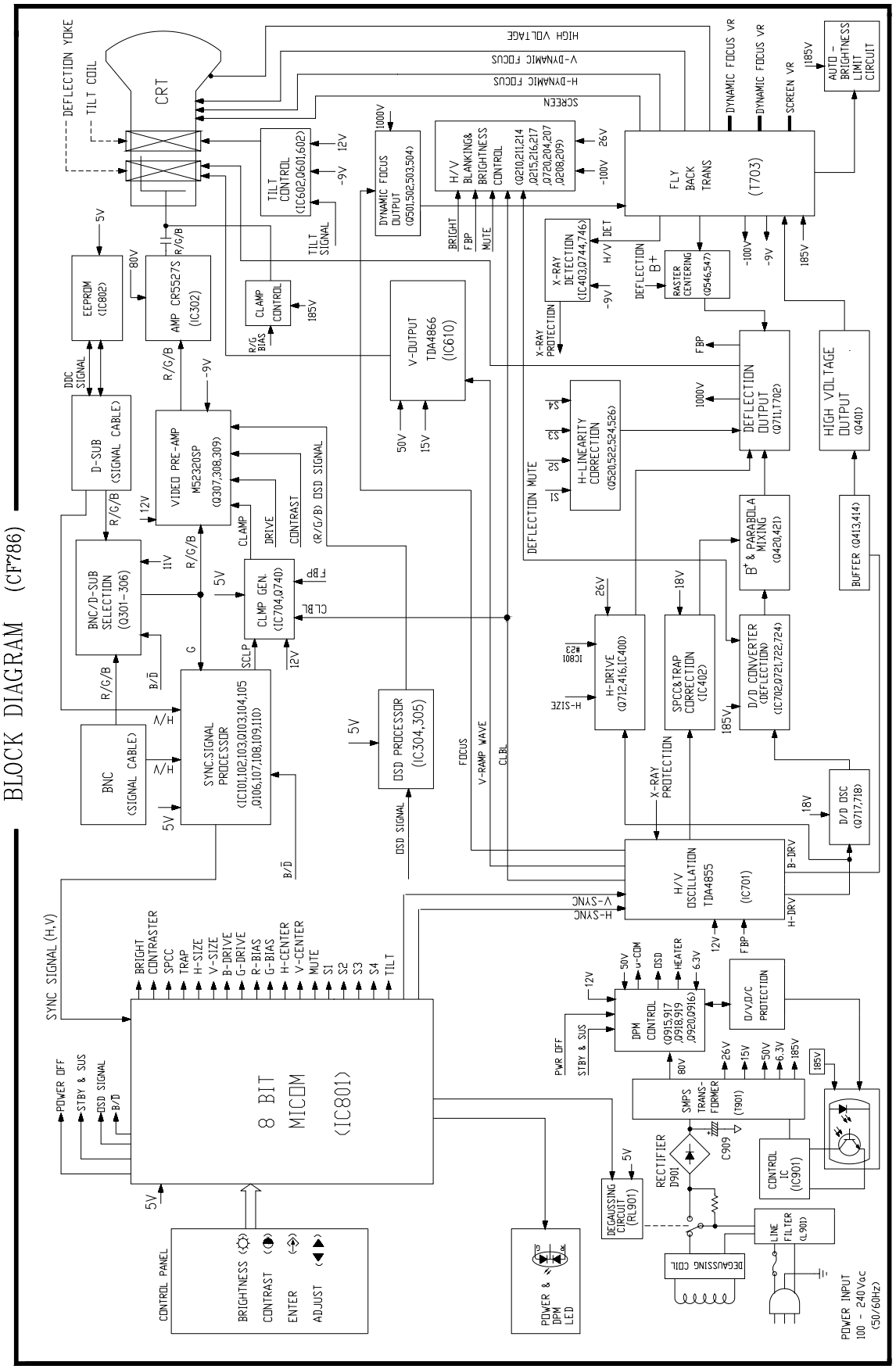


7. MAIN ASSEMBLY REMOVAL

① Remove screw ⓐ.
② Remove three screws ⓑ.



BLOCK DIAGRAM



DESCRIPTION OF BLOCK DIAGRAM

1. Line Filter & Associated Circuit.
This is used for compressing some noises of power input line flowing into the monitor and/or some noises generated in this monitor flowing out through the power input line.
That is to say, this circuit prevents mis-working of the monitor itself and/or other electric appliances.

2. Degauss Circuit & Coil.
The degauss circuit consists of the degaussing coil, the PTC (Positive Temperature Coefficient) thermistor (TH902) and the relay (RL901).
This circuit eliminates abnormal color of the screen automatically by degaussing the shadow mask in the CRT when turn on the power switch.
And when you need to degauss in using the monitor, select DEGAUSS in the OPTION SELECT on the OSD menu.

3. SMPS (Switching Mode Power Supply).
This circuit is working in the condition of 110-240VAC (50/60Hz).
The operation procedure is as follows;
1) AC input voltage is rectified and smoothed by the bridge diode (D901) and the capacitor (C901).
2) The rectified voltage (DC voltage) is applied to the primary coil of the transformer (T901).
3) The control IC (IC901) generates switching pulse to turn on and off the primary coil of the transformer (T901) repeatedly.
4) Depending on the turn ratio of the transformer, the secondary voltages appear at the secondary coils of the transformer (T901).
5) These secondary voltages are rectified by each diode (D915~D927) and operate the other ciruits (Deflection, Video Amplifier etc.).

4. Over Voltage Protection Circuit.
This circuit consists of photo-coupler (IC902), programmable shunt regulator diode (IC932) and the associated circuit.
If the secondary voltage exceeds the specified voltage, the current of the photo-coupler LED flows excessively.
Then, collector current of the photo-coupler flows excessively and stop the oscillation of the control IC (IC901).
Consequently, the secondary voltage is down to zero volt.

5. X-ray Protection.
This block has two circuits, and these circuits are connected wired OR. One circuit detects the rectified DC voltage come from the FBT pin14. If the high voltage of the FBT reaches up to 30kV (abnormal state), OP Amp (IC403) pin 7 come to high level. It turns on the diode (D742) and charges high level at the X-ray protection pin of IC701 (TDA4855). Then, B DRV (Pin6) function of this IC will be shut down. So high voltage will not be generated. (In the normal state, the high voltage is about 25kV.) The other circuit detects the rectified DC voltage comes from the FBT pin6. This rectified voltage is inversely proportional to high voltage. It reaches to -9.8V, then transistors Q745, Q744 are turn on. So, B DRV will be also shut down mode.

6. Micom (microprocessor) Circuit.
The operating procedure of Micom (microprocessor) and its associated circuit is as follows.
1) H and V sync signal is supplied from the sync porcessor block to the Micom (IC801).
2) The Micom (IC801) distinguishes polarity and frequency of H and V sync from the sync processor block.
3) The Micom sets operating mode and offers the controlled data. (H-size, H-position, V-size, etc.)
4) The controlled data of each mode is stored in itself.
5) User can adjust screen condition by each OSD function.The data of the adjusted condition is stored in itself automatically.

7. Horizontal and Vertical Oscillation.
This circuit generates the horizontal pulse and the vertical pulse by taking the hold data from the Micom (IC801).
This circuit consists of the TDA4855 (IC701) and the associated circuit.

8. Oscillating Circuit for D/D Converter.
This circuit generates the saw-tooth wave which has the horizontal period by taking the output of the TDA4855 (IC701).

9. D/D (DC to DC) Converter.
This circuit supplies DC voltage to the horizontal deflection output circuit by decreasing DC 185V which is the secondary voltage of the SMPS in accordance with the input horizontal sync signal.

10. Side-Pincushion & Trapezoid Correcting Cirucit.
This circuit improves the Side-pincushion and the Trapezoid distortion of the screen by mixing parabola and saw-tooth wave to the output of the horizontal deflection D/D converter which is used for the supply voltage source (B^+) of the deflection circuit.

11. B^+ & Parabola Wave Mixing Circuit.
This circuit is used for mixing the parabola wave to the supply voltage source (B^+) of the horizontal deflection circuit to improve the Side-pincushion and the Trapezoid distortion.

12. Horizontal Deflection Output Circuit.
This circuit makes the horizontal deflection by supplying the saw-tooth current to the horizontal deflection yoke.

13. High Voltage Output & FBT (Flyback Transformer).
The high voltage output circuit is used for generating pulse wave to the primary coil of the FBT (Flyback Transformer (T703)).
A boosted voltage (about 25kV) appears at the secondary of the FBT and it is supplied to the anode of the CRT.
And there are another output voltages such as the dynamic focus and the screen voltage.

14. H-Linearity Correction Circuit.
This circuit corrects the horizontal linearity for each horizontal sync frequency.

15. H-Raster Centering Circuit.
This circuit makes the back raster stay in the center of the screen by adjusting the variable resistor (VR501).

16. Vertical Output circuit.
This circuit takes the vertical ramp wave from the TDA4855 (IC701) and performs the vertical deflection by supplying the saw-tooth wave current to the vertical deflection yoke.

17. Dynamic Focus Output Circuit.
This circuit takes H and V parabola waves from the TDA4855 (IC701) and amplifies these waves to offer to the FBT (T703).

18. H and V Blanking & Brightness Control.
This circuit eliminates retrace line by supplying a negative pulse wave to the G1 of the CRT. And this circuit is used for control of the screen brightness by changing the DC level of G1.

19. Image Rotation Circuit.
This circuit corrects the tilt of the screen by supplying the image rotation signal to the tilt coil which is attached to the CRT near the deflection yoke.

20. OSD Circuit.
This circuit is used for performing the OSD (On Screen Display) function.
When an user select OSD Select/Adjust control, the adjustment status displays on the screen.

21. BNC/D-SUB Selection Cricuit.
The video and the sync signal can be applied in 5 BNC input terminals and/or D-SUB input terminal.
The selection signal whether the video signal is received from the BNC or D-SUB comes out from the Micom (IC801).
The video and the sync signal is selected by this selection signal.

22. Sync Signal Processing Circuit.
When the selection signal of BNC/D-SUB is supplied to IC102, the sync signal in accordance with each selection signal comes out.
The IC102 can accommodate the separate TTL, the composite and the SOG (Sync On Green Video) sync signal.

23. Video Pre-Amp Circuit.
This circuit amplifies the analog video signal from 0-0.7V to 0-4V.
This circuit is operated by taking the clamp, R,G,B drive and contrast signal from the Micom (IC801).

24. Video Output Amp Circuit.
This circuit amplifies the video signal which comes out from the video pre-amp circuit output about 17 times and this amplified video signal is applied to the CRT cathode.

ADJUSTMENT

GENERAL INFORMATION

All adjustment should be done in accordance with the following adjustment procedure and after power-on 30 minutes at least. At first, It is necessary to prepare the alignment appliances, software (Alignment program) and alignment cable.

- Alignment appliances and tools
  - -Personal Computer & Monitor.
  - -Signal Generator (For example: “VG819” Astrodesign Co.)
  - -ROM (Saved Data: Mode1~Mode8, Mode 19, 20) for
  - - Signal Generator.
  - - Oscilloscope with probe
  - - Alignment cable with Adaptor
  - - Digital Volt-Meter
  - - Software (Alignment program for this monitor)
  - - White Balance Meter
  - - Luminance Meter

- TIMING CHART FOR ADJUSTMENT

Item \ Mode	Horizontal		Vertical	
	Mode 19	Mode 20	Mode 19	Mode 20
Sync Polarity	+	+	+	+
Frequency	29.99kHz	85.03kHz	49.99Hz	120.10Hz
Total Period	33.34μs	11.76μs	20.004ms	8.326ms
Video Active Time	29.27μs	8.34μs	18.337ms	7.526ms
Blanking Time	4.07μs	3.45μs	1.667ms	0.800ms
Front Porch	0.08μs	0.43μs	0.266ms	0.142ms
Back Porch	1.14μs	1.51μs	1.334ms	0.611ms
Sync Duration	2.85μs	1.51μs	0.067ms	0.047ms
Resolution	720	640	550	640

ADJUSTMENT PROCEDURE & METHOD

Install the cable for adjustment such as figure 1 and run the alignment program on the DOS for the IBM compatible PC.

1. B^+ Adjust
   - ① Display cross-hatch pattern at Mode 8.
   - ② Perform 「FOS ADJ」→「MORE ADJ」→「B^+ Voltage」 command.
   - ③ Adjust 185 ±0.5V at D916 cathode and GND.

2. Check of the HIGH VOLTAGE
   - ① Display cross-hatch pattern at Mode 1.
   - ② Check -8V~-9V at D775 anode and GND.

3. Check Horizontal & Vertical OSC Frequency
   - ① Display cross-hatch pattern at Mode 19.
   - ② Check whether screen is synchronized or not.
   - ③ Display cross-hatch pattern at Mode 20.
   - ④ Check whether screen is synchronized or not.
   - ⑤ Display cross-hatch pattern at Mode 19.
   - ⑥ Check whether screen is synchronized or not.
   - ⑦ Display cross-hatch pattern at Mode 20.
   - ⑧ Check whether screen is synchronized or not.

4. Check Video Level
   - ① Perform 「FOS ADJ」→「OPTION SEL」 command.
   - ② Check whether video level is 0.7V or 1.0V.
   - ③ Select 0.7V for the video level and 「ENTER」.

5. Adjust Horizontal Raster Center
   - ① Display cross-hatch pattern at Mode 8.
   - ② Adjust VR501 and the screen to center position.

6. Adjust FACTORY MODE
   - ① Perform 「COMMAND」→「FAC. ALL DEL」, and 「USER MODE DEL」 command.
   - ② Perform 「FACTORY ON」 command.
   - ③ Display cross-hatch pattern at Mode 1.
   - ④ Adjust 「H-SIZE」 as arrow keys to 300 ±2mm.
   - ⑤ Adjust 「H-POSI」 as arrow keys to center of the screen.
   - ⑥ Adjust 「V-SIZE」 as arrow keys to 225 ±2mm.
   - ⑦ Adjust 「V-POSI」 as arrow keys to center of the screen.
   - ⑧ Adjust 「S-PCC」 as arrow keys to be best condition.
   - ⑨ Adjust 「TRAPEZOID」 as arrow keys to be best condition.
   - ⑩ Display from Mode 2 to Mode 8 and adjust repeated from no. ④ to no. ⑨ as stated above.
   - ⑪ Perform 「COMMAND」→「FACTORY OFF」 command.

7. Adjust White Balance and Luminance
   - ① Set the White Balance Meter.
   - ② Demagnetized CRT for (DEGAUSS) in the OSD menu.
   - ③ Display color 0,0 pattern at Mode 8.
   - ④ Set external Bright and Contrast to max.
   - ⑤ Perform 「COLOR ADJ」→「EXT BRT/CONT」 command.
   - ⑥ Set 「EXT-BRIGHT」 and 「EXT-CONTRAST」 data to max position.
   - ⑦ Perform 「BIAS ADJ」→「SUB-BRIGHT」 command.
   - ⑧ Set 「SUB-BRIGHT」 data to max position.
   - ⑨ Check whether blue color or not at 「R-BIAS」 and 「G-BIAS」 data to min position. if it is not blue color, the monitor should be repaired.
   - ⑩ Adjust Screen volume of the FBT to 0.25 ±0.05FL of the raster luminance.
   - ⑪ Adjust 「R-BIAS」 and 「G-BIAS」 command to x=0.281 ±0.01 and y=0.311 ±0.01 with the White Balance Meter.
   - ⑫ Adjust 「SUB-BRIGHT」 command to 0.5 ±0.1FL of the raster luminance.
   - ⑬ Display color 15,0 box pattern (70 × 70mm) at Mode 8.

⑭ Adjust 「R-DRIVE」 and 「B-DRIVE」 command to x=0.281 ±0.003 and y=0.311 ±0.003 with the White Balance Meter.
⑮ Adjust 「CONT-SLOPE」 command to 52 ±2FL of the raster luminance.
⑯ Save in the 「COLOR 1」 command.
⑰ Display color 15,0 full-white pattern at Mode 8.
⑱ Adjust 「ABL ADJ」 command to 30 ±1FL of the raster luminance.
⑲ Adjust 「R-BIAS」 and 「G-BIAS」 command to x=0.297 ±0.01 and y=0.320 ±0.01 with the White Balance Meter.
⑳ Adjust 「SUB-BRIGHT」 command to 0.5 ±0.1FL of the raster luminance.
㉑ Display color 15,0 box pattern (70 × 70mm) at Mode 8.
㉒ Adjust 「R-DRIVE」 and 「B-DRIVE」 command to x=0.297 ±0.003 and y=0.320 ±0.003 with the White Balance Meter
㉓ Adjust 「CONT-SLOPE」 command to 52 ±2FL of the raster luminance.
㉔ Save in the 「COLOR 2」 command.
㉕ Perform 「COLOR-TEMP」 command.
㉖ Save in the 「COLOR MODE 0」 command.

8. Adjust Focus
① Display 「H」 character in the full screen at Mode 8.
② Adjust to best focus with two Focus volumes on the FBT.

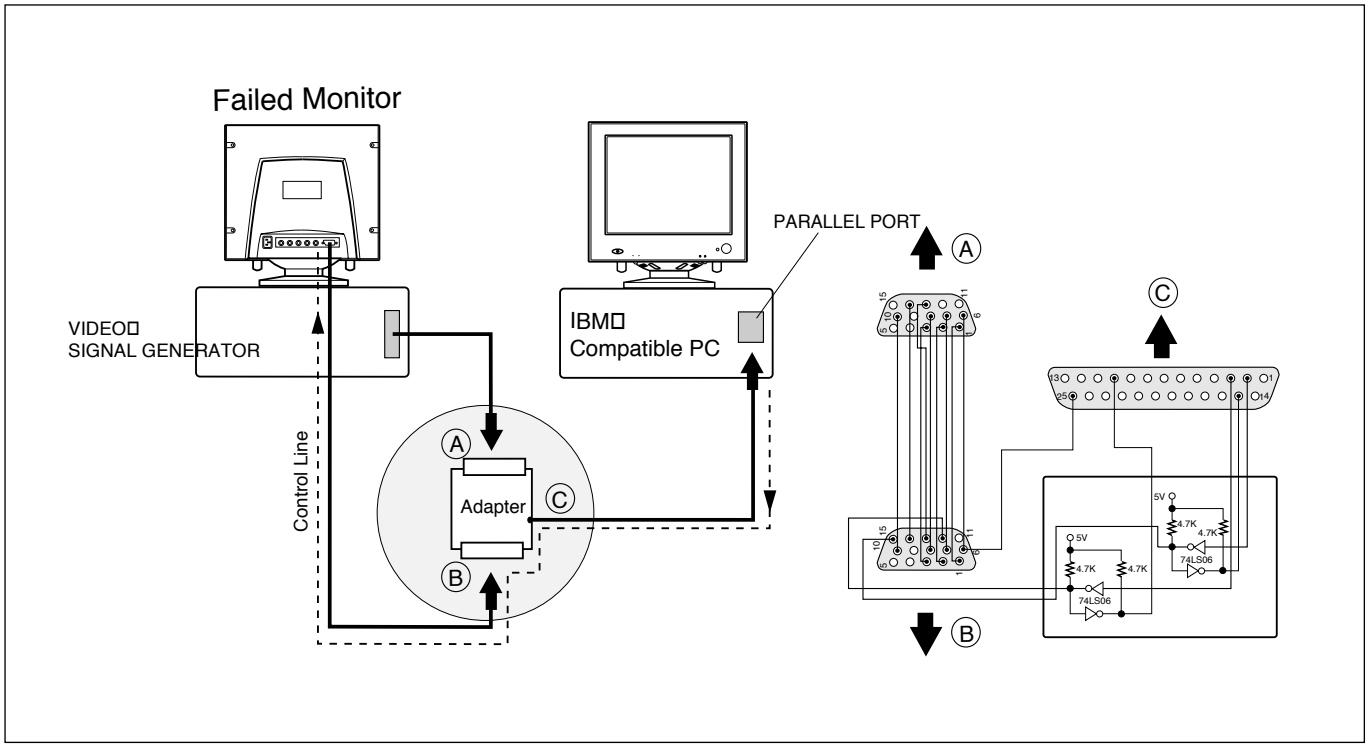
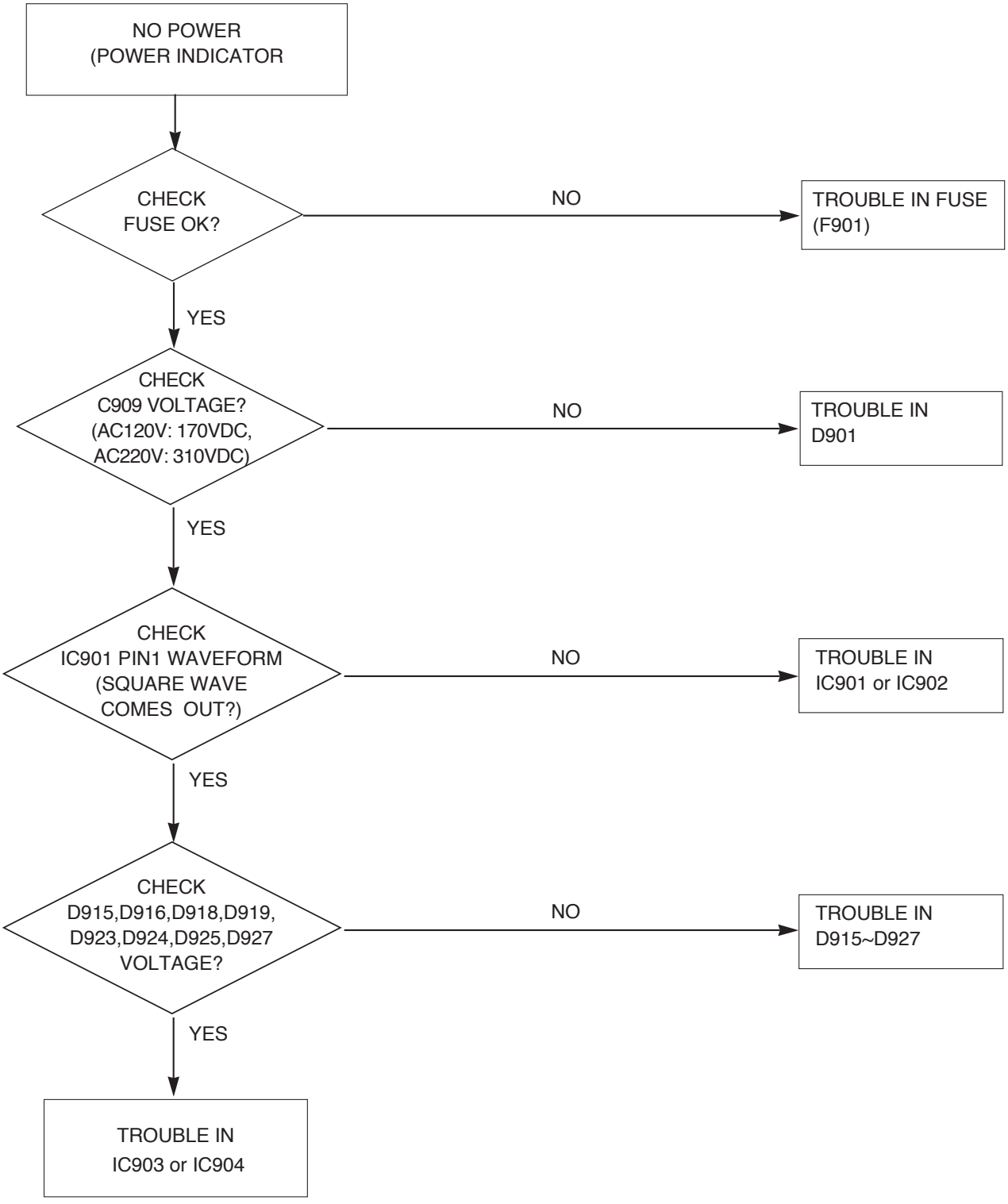


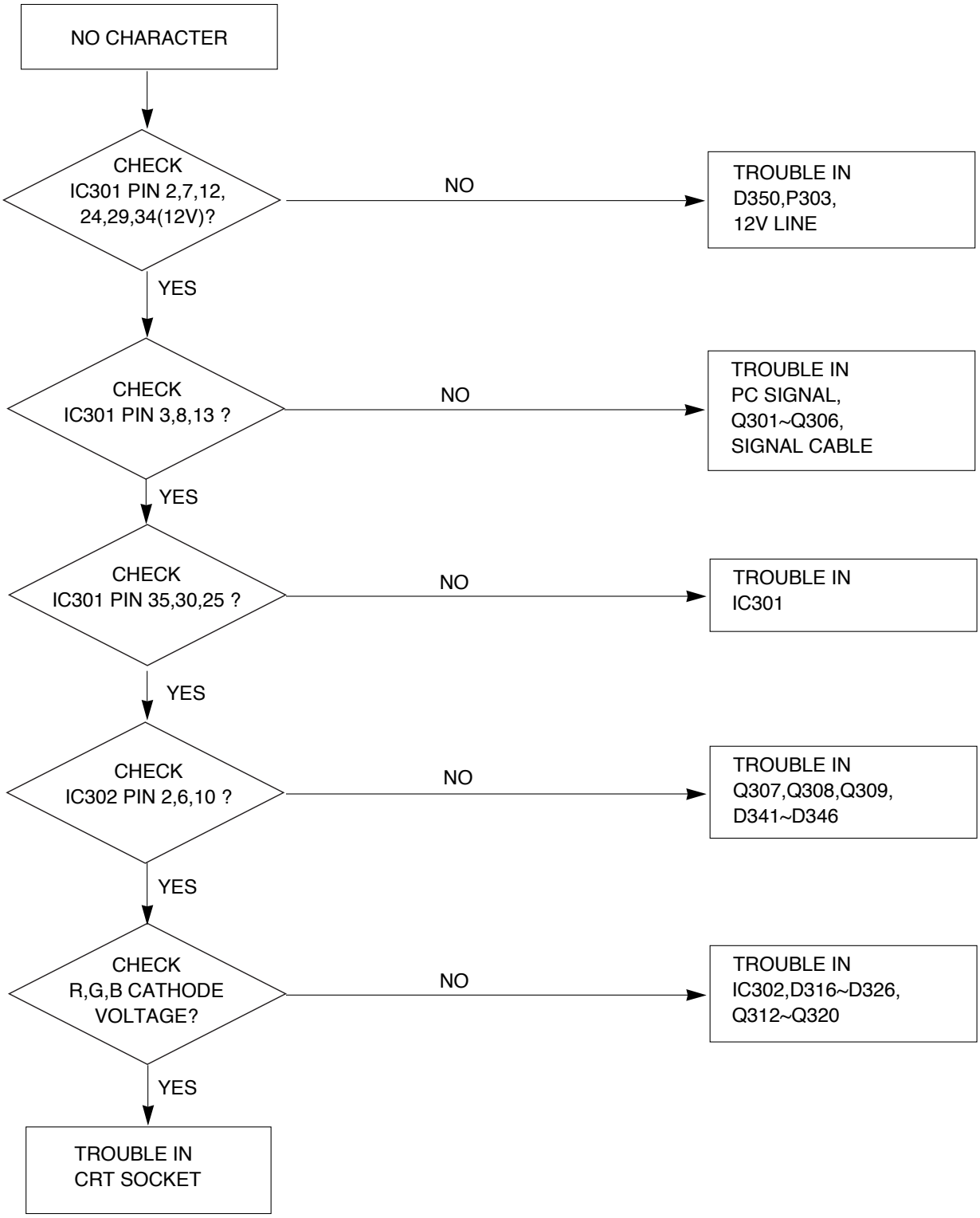
Figure 1, Cable Connection

TROUBLE SHOOTING GUIDE

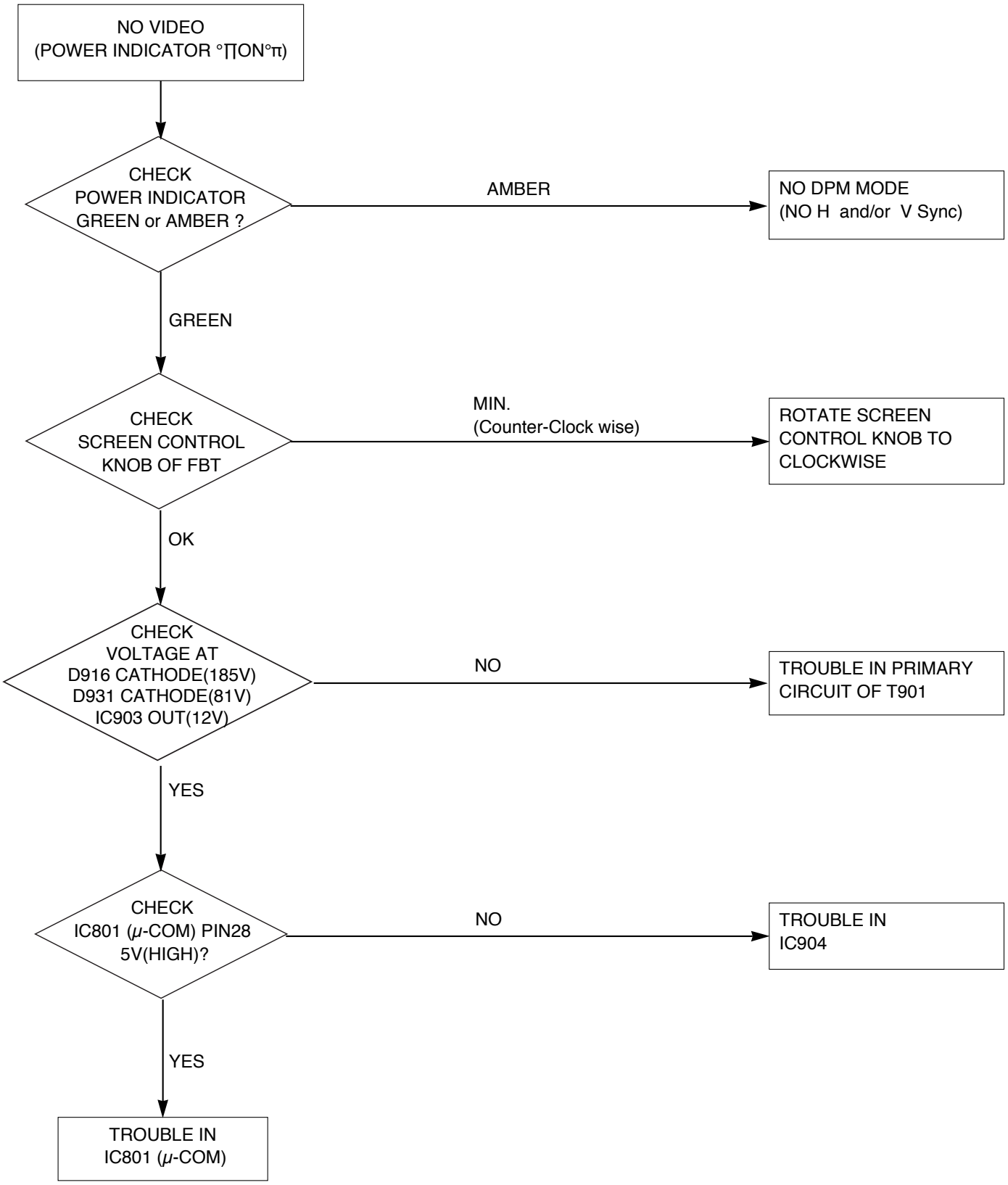
1. NO POWER



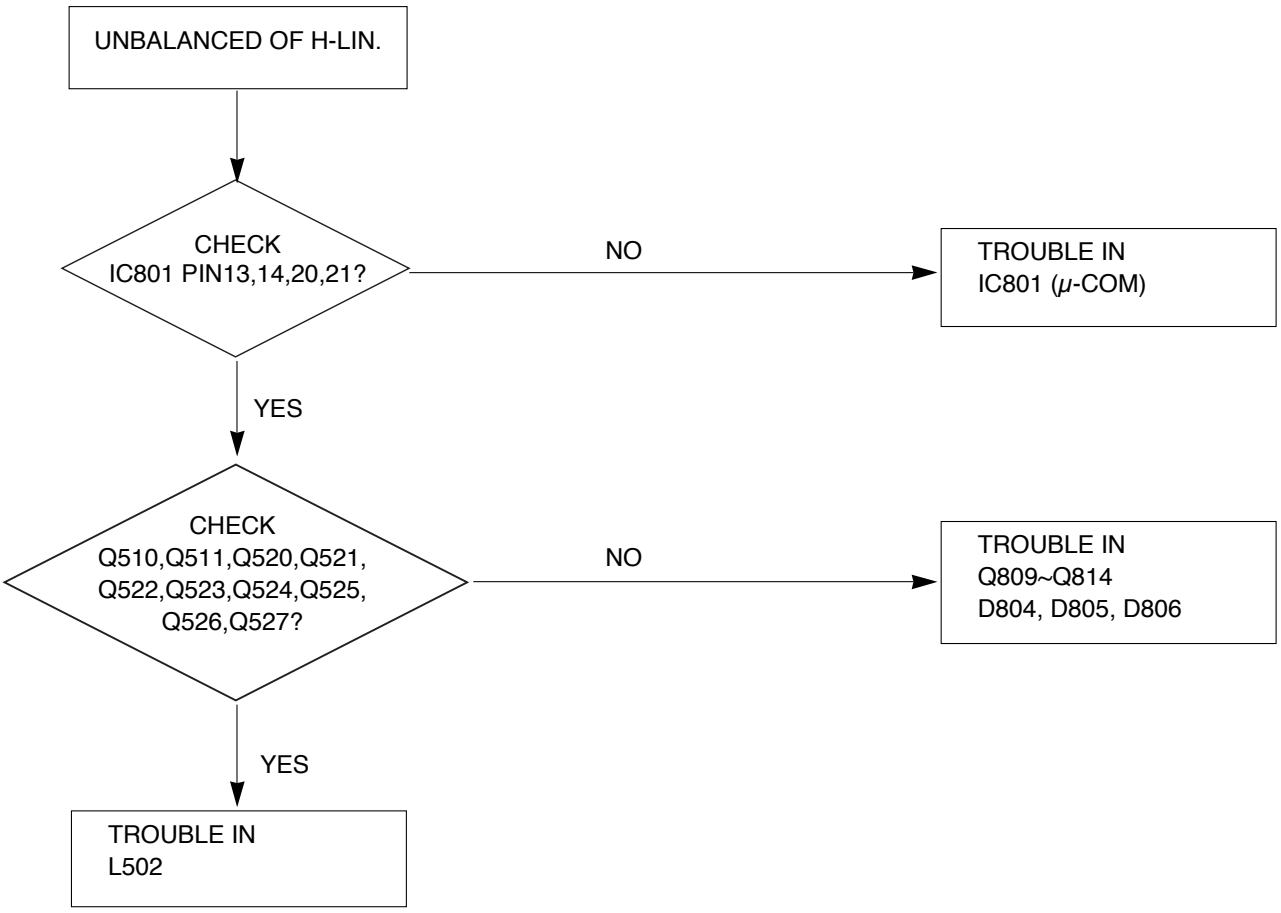
2. NO CHARACTER



3. NO RASTER


NO VIDEO
(POWER INDICATOR °ÏÏON°π)
CHECK
POWER INDICATOR
GREEN or AMBER ?
AMBER
NO DPM MODE
(NO H and/or V Sync)
GREEN
CHECK
SCREEN CONTROL
KNOB OF FBT
MIN.
(Counter-Clock wise)
ROTATE SCREEN
CONTROL KNOB TO
CLOCKWISE
OK
CHECK
VOLTAGE AT
D916 CATHODE(185V)
D931 CATHODE(81V)
IC903 OUT(12V)
NO
TROUBLE IN PRIMARY
CIRCUIT OF T901
YES
CHECK
IC801 (μ-COM) PIN28
5V(HIGH)?
NO
TROUBLE IN
IC904
YES
TROUBLE IN
IC801 (μ-COM)

4. TROUBLE IN H-LINEARITY

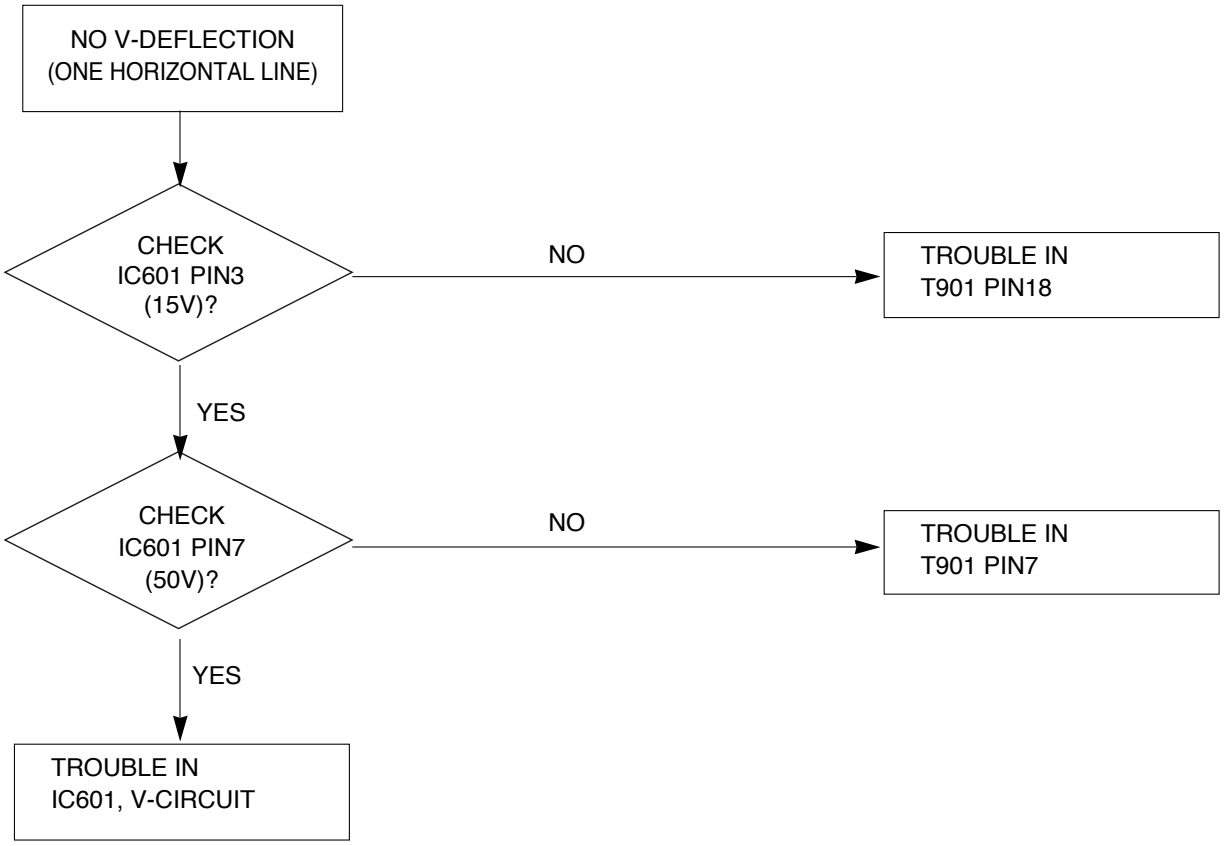


<Cs SIGNAL TABLE>

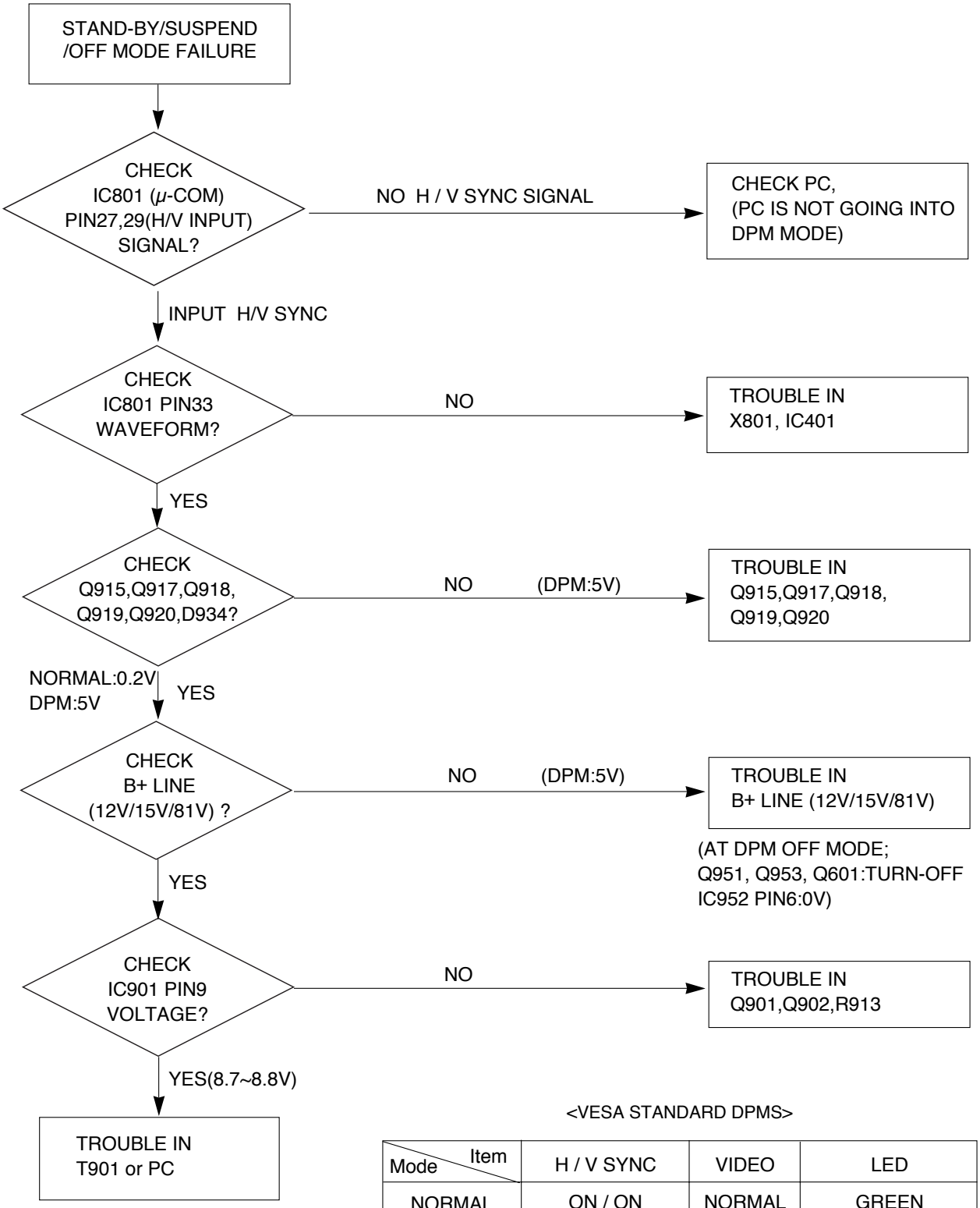
HORIZONTAL FREQUENCY(f_H)	Cs 1	Cs 2	Cs 3	Cs 4
30~33kHz	L	L	L	L
33.1~36.5kHz	L	L	H	L
36.6~43kHz	L	H	H	L
43.1~53kHz	H	L	H	L
53.1~59kHz	H	H	L	L
59.1~65kHz	H	H	L	H
65.1~75kHz	H	H	H	L
75.1~85kHz	H	H	H	H

(H:off
L :on

5. NO VERTICAL DEFLECTION



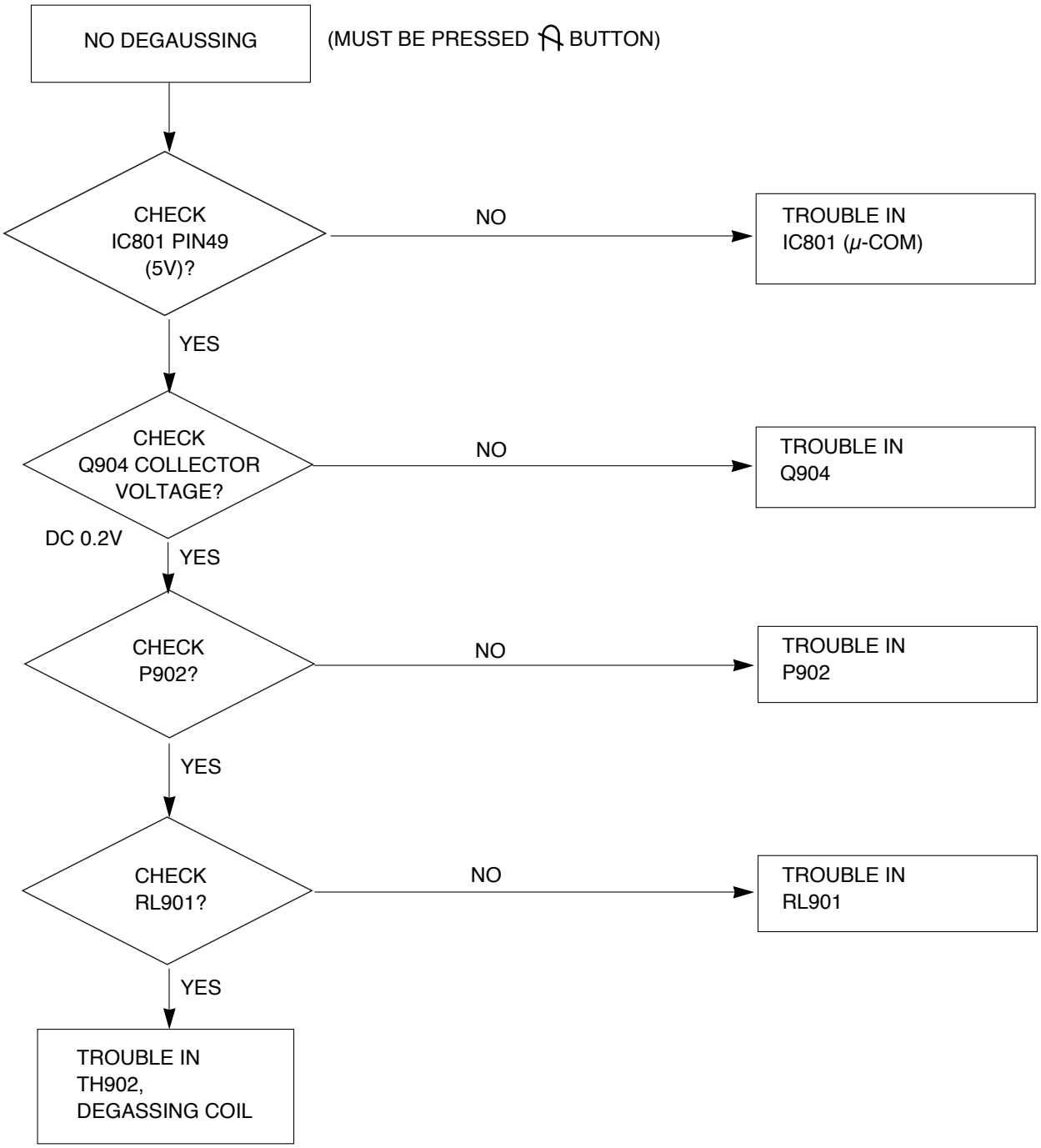
6. TROUBLE IN DPM



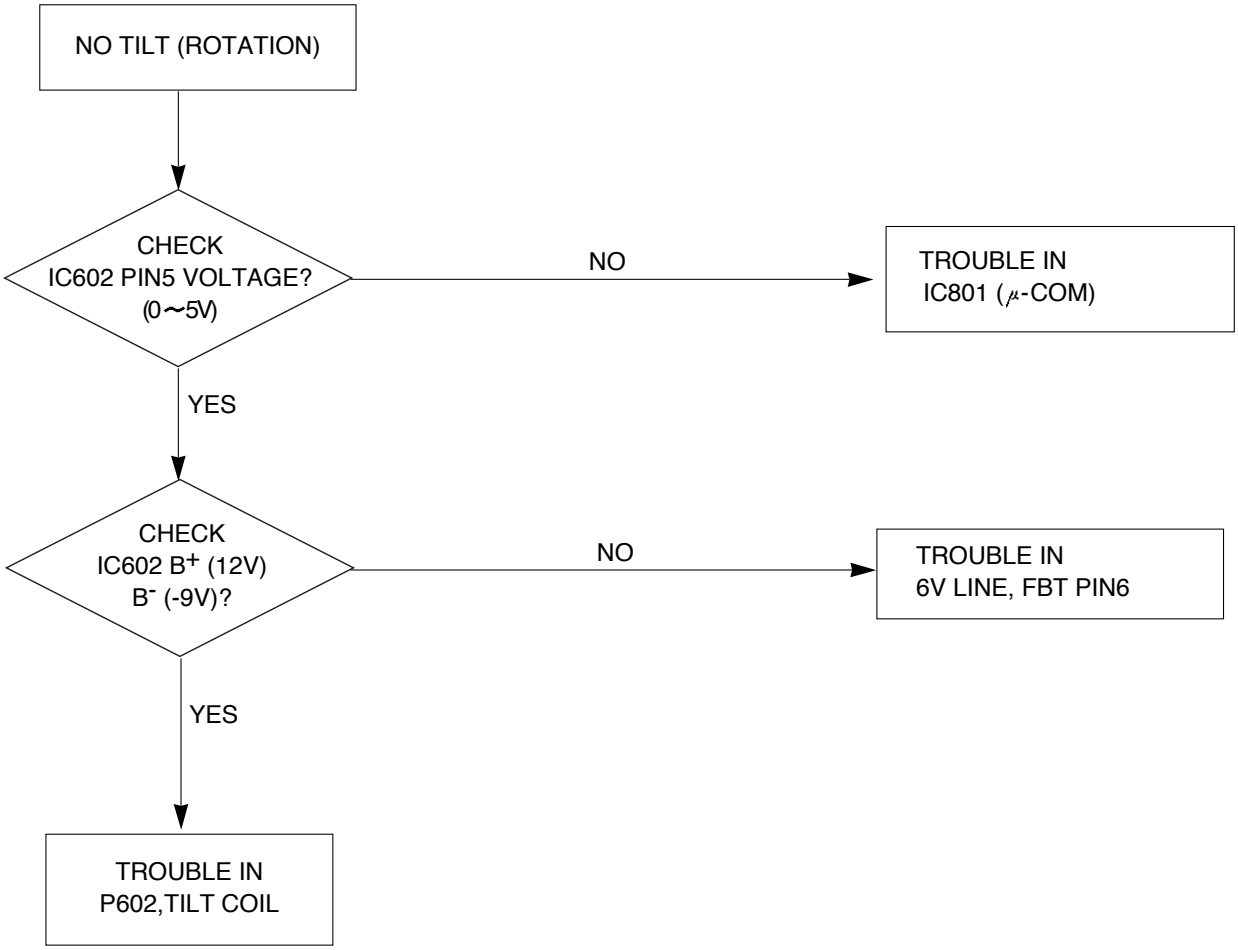
<VESA STANDARD DPMS>

Mode \ Item	H / V SYNC	VIDEO	LED
NORMAL	ON / ON	NORMAL	GREEN
STAND-BY	OFF / ON	OFF(OV)	AMBER
SUSPEND	ON / OFF	OFF(OV)	AMBER
OFF	OFF / OFF	OFF(OV)	AMBER

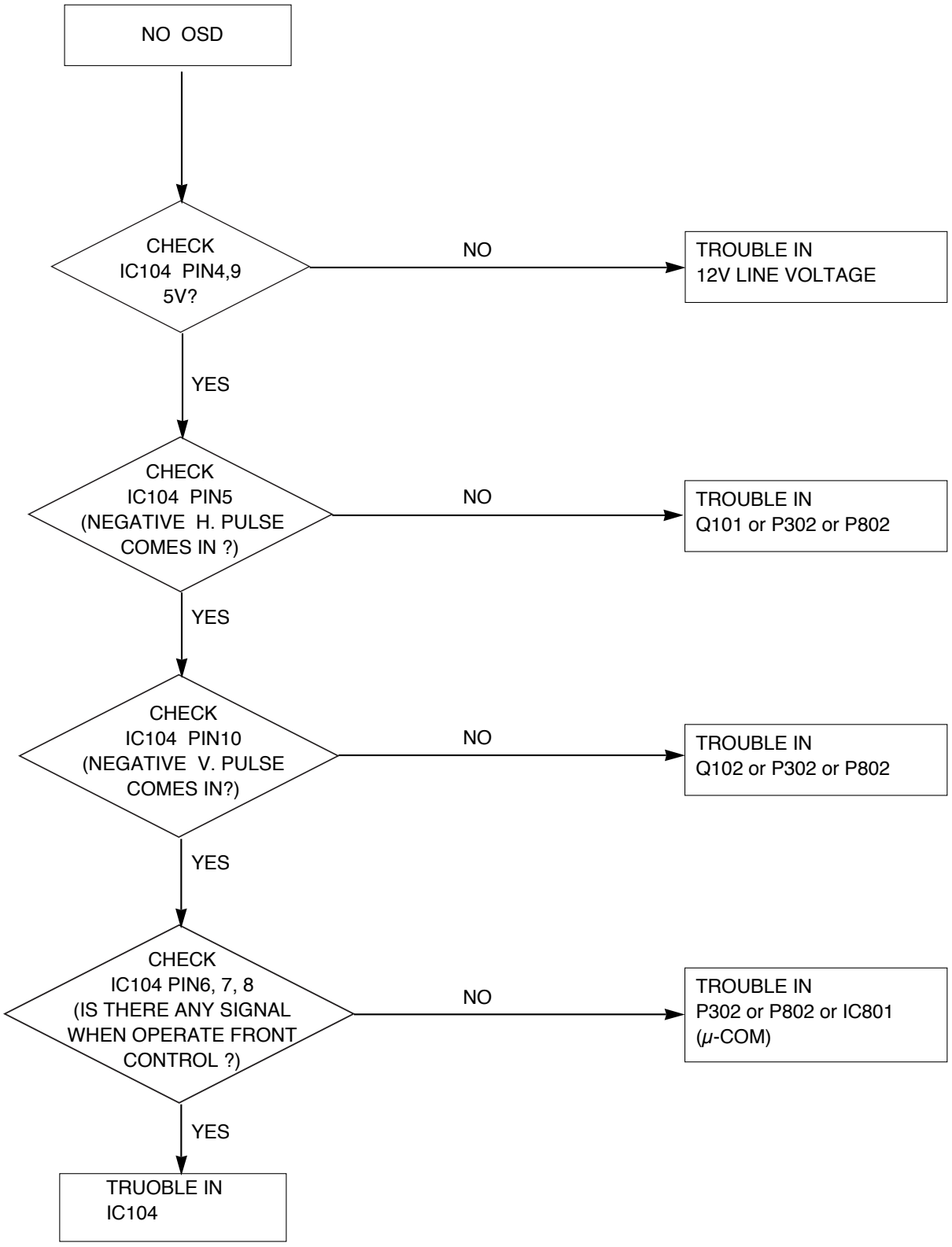
7. NO DEGASSING



8. NO TILT (ROTATION)

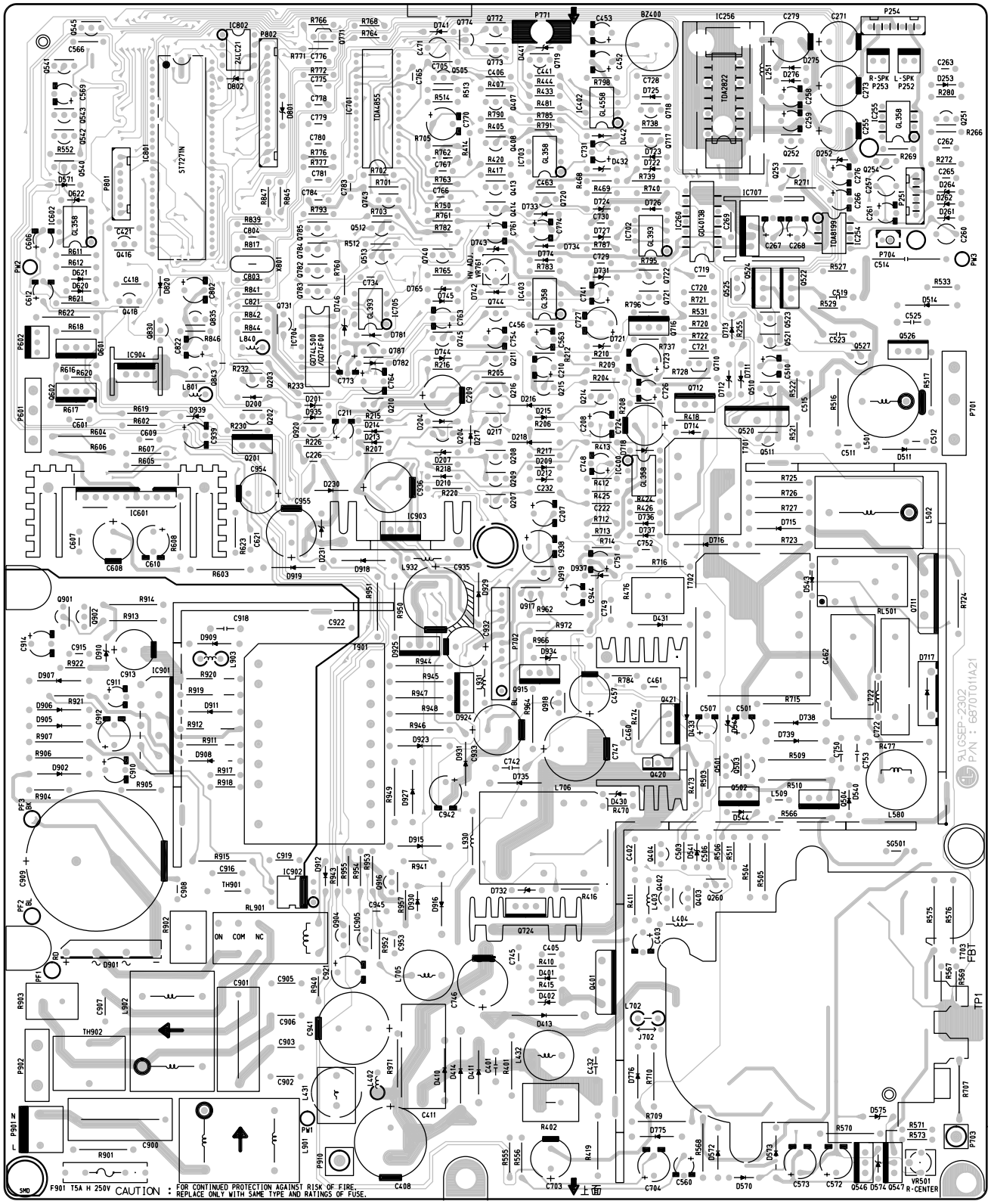


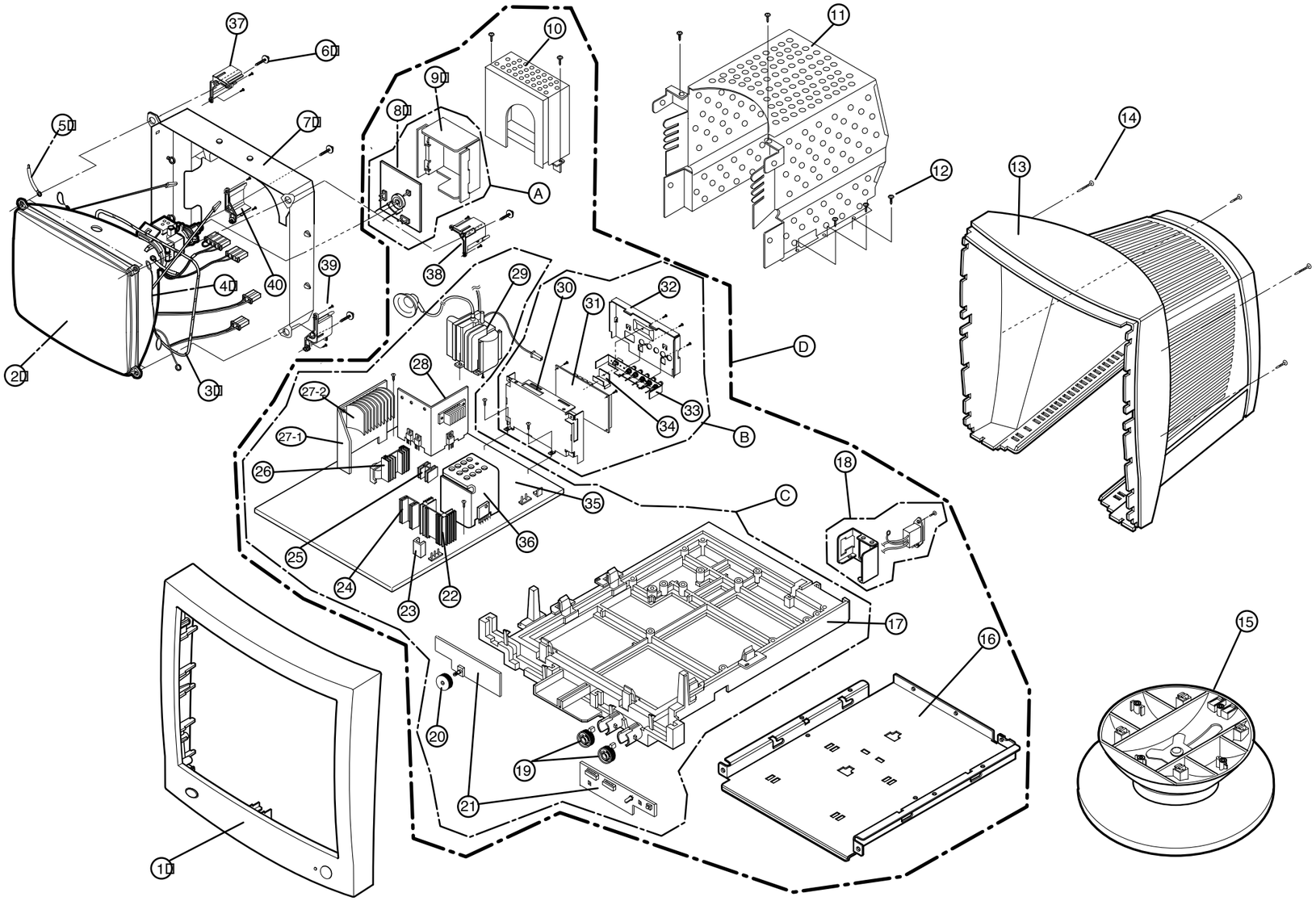
9.TROUBLE IN OSD



PRINTED CIRCUIT BOARD

1. MAIN BOARD (Component Side)


9JCSEP-2302
P/N : 6870T011A21
F901 T5A H 250V CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATINGS OF FUSE.
ON COM NC
R-SPK P253
L-SPK P252
ISYM LAYER GS MNT



EXPLODED VIEW PARTS LIST

Ref. No.	Part No.	Description	Q'ty	Material
1	300-D19B	CABINET ASS'Y	1	LGC ABS 345 UL94-5V
2	112-884A	CRT, M41KXH147X06 MATSUSHITA FOR MPR-II	1	
	112-886A	CRT, M41KKL680X72 (UQ) HITACHI FOR MPR-II		
	112-886B	CRT, M41KKL680X72 (TQ) HITACHI FOR TCO-92		
3	150-B16A	DEGAUSSING COIL	1	
4	170-128C	CRT EARTH	1	
5	341-738A	WIRE HOLDER	4	
6	339-002D	SCREW, PHP+5°ø30 BP+GW18	4	
7	340-688B	BRACKET, COVER SHIELD ASS'Y	1	SBHG1-A(t=0.6)
8	109-B68A	CRT PCB ASS'Y	1	
9	302-A51A	CRT PCB SHIELD	1	SPTE-C (t=0.5)
10	302-A89A	CASE, SHIELD	1	SPTE (t=0.3)
11	340-737A	BRACKET, TOP SHIELD-REAR	1	SBHG1-A (t=0.3)
12	332-110A	SCREW, PZS+3°ø6	8	
13	303-K25A	BACK COVER	1	LGC ABS AF345 UL94-5V
14	332-102G	SCREW, PTP+4°ø30	4	
15	231-047A	TILT SWIVEL ASS'Y	1	LGC ABS HF350 UL94-HB
16	340-714A	BRACKET, BOTTOM SHIELD	1	SBHG1-A (t=1.0)
17	340-713A	BRACKET, MAIN	1	LGC ABS 303S UL94-V0
18	309-499A	CHASSIS ASS'Y REAR	1	
19	440-957A	KNOB, BRIGHT & CONTRAST	2	LGC ABS 303S UL94-V0
20	440-958A	KNOB, MICOM CONTROL	1	LGC ABS 303S UL94-V0
21	109-B64A	PCB ASS'Y, CONTROL	1	
22	407-S87C	PLATE, HEAT SINK FOR IC601	1	AL
23	407-S88A	PLATE, HEAT SINK FOR IC904	1	STEEL
24	407-C42P	PLATE, HEAT SINK FOR IC903	1	AL
25	407-S29B	PLATE, HEAT SINK FOR Q724	1	AL
26	407-L83H	PLATE, HEAT SINK FOR Q421	1	
27-1	407-T12A	PLATE, HEAT SINK FOR Q711,D717	1	AL (t=2.0)
27-2	407-R41A	PLATE, HEAT SINK FOR Q711,D717	1	AL
28	407-T78A	PLATE, HEAT SINK FOR Q401	1	AL (t=2.0)
29	154-235B	FBT, FOR MATSUSHITA'S CRT	1	
	154-235E	FBT, FOR HITACHI'S MPR-II CRT		
	154-242B	FBT, FOR HITACHI'S TCO-92 CRT		
30	340-668B	BRACKET, VIDEO FRONT	1	AL (t=1.0)
31	109-B66E	PCB ASS'Y, VIDEO	1	
32	340-667A	METAL ASS'Y, VIDEO REAR	1	SBHG1-A (t=1.0)
33	409-O81D	PLATE ASS'Y, BNC & D-SUB	1	SBHG1-A (t=0.5)
34	407-Q13B	PLATE, HEAT SINK FOR IC 302	1	
35	109-B62B	PCB ASS'Y, MAIN FOR MATSUSHITA'S CRT	1	
	109-B62D	PCB ASS'Y, MAIN FOR HITACHI'S TCO-92 CRT		
	109-B62E	PCB ASS'Y, MAIN FOR HITACHI'S MPR-II CRT		
36	407-T77A	PLATE, HEAT SINK FOR IC 901	1	AL (t=2.0)

EXPLODED VIEW PARTS LIST

Ref. No.	Part No.	Description	Q'ty	Material
37	340-715A	BRACKET, SIDE TOP-LEFT	1	LGC ABS 303S UL 94-V0
38	340-716A	BRACKET, SIDE TOP-RIGHT	1	LGC ABS 303S UL 94-V0
39	340-718A	BRACKET, SIDE BOTTOM-RIGHT	1	LGC ABS 303S UL 94-V0
40	340-717A	BRACKET, SIDE BOTTOM-LEFT	1	LGC ABS 303S UL 94-V0
A	309-532A	CHASSIS ASS'Y CRT	1	
B	309-531B	CHASSIS ASS'Y VIDEO FOR MATSUSHITA'S CRT	1	
	309-531D	CHASSIS ASS'Y VIDEO FOR HITACHI'S TCO-92 CRT		
	309-531E	CHASSIS ASS'Y VIDEO FOR HITACHI'S MPR-II CRT		
C	309-530B	CHASSIS ASS'Y MAIN FOR MATSUSHITA'S CRT	1	
	309-530D	CHASSIS ASS'Y MAIN FOR HITACHI'S TCO-92 CRT		
	309-530E	CHASSIS ASS'Y MAIN FOR HITACHI'S MPR-II CRT		
D	309-529B	CHASSIS ASS'Y TOTAL FOR MATSUSHITA'S CRT	1	
	309-529D	CHASSIS ASS'Y TOTAL FOR HITACHI'S TCO-92 CRT		
	309-529E	CHASSIS ASS'Y TOTAL FOR HITACHI'S MPR-II CRT		

CA-33 SCHEMATIC DIAGRAM (MAIN & CONTROL)

CF786 MAIN

Ref. No.	CDT	
	MASTUSHITA	HITACHI
	M41KXH M41KKL	M41KSX M41KKL
R944	RN 1.2(1/2)	RN 0.47(1/2)
R945	RN 1.5(1/2)	RN 0.47(1/2)
R607	160 (1/6)	560 (1/6)
R512	8.2K (1/6)	13K (1/6)
R513	1.2K (1/6)	1K (1/6)
R555	390K (1/4)	510K (1/4)
R556	390K (1/4)	510K (1/4)
C609	CC 15pF/50V	CC 10pF/500V
C523	MPP 0.22uF/250V	MPP 0.12uF/250V

IMPORTANT SAFETY NOTICE

THE ⚠ SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURER'S SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMATIC.

IMPORTANT AVIS SUR LA SÉCURITÉ

LA ⚠ SYMBOLE MARQUE DE CE DIAGRAMME SCHEMATIQUE COMPREND DIMPORTANTES CARACTÉRISTIQUES SPÉCIALES CONCUES POUR PROTÉGER DES RAYONS X, ET DES DANGERS DINCENDIE ET DE SECOUSSES ÉLECTRIQUES. EN CAS DE BESOIN SI DES PIECES DE CETTE ⚠ SYMBOLE MARQUE DOIVENT ETRE REMPLACE'S N'UTILISEZ QUE DES PIECES SPÉCIFIÉES PAR LE MANUFACTURIER.

P/N : 484-1996. 04. 01

CA-33 SCHEMATIC DIAGRAM 《VIDEO & CPT》

Ref.	CDT
	HITACHI
No	M41KSX M41KKL
R391	120kohm (1/6W)
R374	620ohm (1/4W)
R379	620ohm (1/4W)
R384	620ohm (1/4W)

1997, 03, 31